Management of Intra-operative Vascular ComplicationsIs there a way to learn it in the lab?

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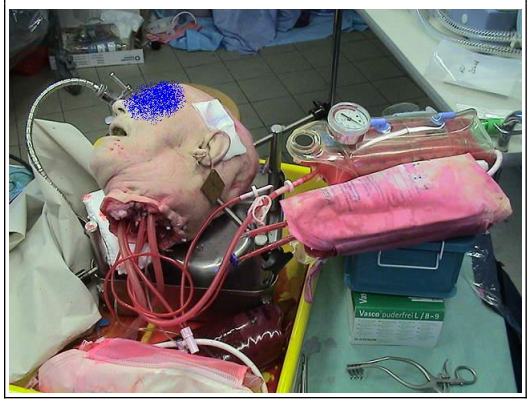
Introduction

The management of Intra-operative vascular complications in neurosurgery cannot be learned in the OR. These complications are not scheduled on regular basis. And even when happened there is no time to teach. Intra-operative rupture of aneurysms as an example should be practiced by residents in a training model that simulates the real-life conditions in the same anatomy in order to expose them to such situation before they face it in a live patient for the first time. We established a new cadaveric model that allows a life-like surgical training for the management of intra-operative rupture of cerebral aneurysms.

cannulation and reservoir



Methods

the major vessels in cadaver head specimens were cannulated and connected to colored liquid reservoirs and further connect the arterial reservoir to a pump that provides pulsating pressure to the arteries inside the specimen (Video 1). Artificial aneurysms were created in the usual locations by using venous grafts sutured to the vessels wall and reshaped to simulate real aneurysms (video 2, 3).

Results

This method provides a condition that simulates live surgery in terms of bleeding, pulsation, and liquid filling of the vascular tree. Trainees will be able to clip aneurysms and deal with intra-operative aneurismal rupture and repair vascular injury under the same conditions of life surgery: (Videos 4,5)
Video 1:

Movie

Movie

Movie

Conclusions

This method provides a unique opportunity for residents and young Neurosurgeons to practice the management of intra-operative rupture of cerebral aneurysms and vascular repair in the same human anatomy and the real live surgical field.

Video 2, 3:

Learning Objectives

By the conclusion of this poster, reader will understand the application of this model and prepare this training technique in their laboratories.

References

- Aboud E, Al-Mefty O, Yasargil MG (2002) New laboratory model
for neurosurgical training that simulates live surgery. J Neurosurg 97(6):1367–1372

Video 4, 5:

Movie

Movie